

REMARKS

Favorable reconsideration of this application in view of the remarks to follow is respectfully requested.

In this Response, applicants have amended Claims 1, 29 and 30 to further limit the iron constituent of the inventive alloy film to between about 60% and about 75%. Support for this amendment can be found at page 13, lines 5-7. Since no new matter is introduced into the application, entry thereof is respectfully requested. Further, in order to expedite prosecution of the present application, applicants have deleted Claim 31, without prejudice.

In the present Office Action dated February 17, 2005, Claim 31 is rejected under 35 U.S.C. § 112 as allegedly failing to comply with the written description requirement; and Claims 1-10 and 28-31 are rejected under 35 U.S.C. § 103 as allegedly obvious over the combination of the article to E.M. Kakuno, et al. entitled "Structure, Composition, and Morphology of Electrodeposited $\text{Co}_x\text{Fe}_{1-x}$ Alloys", J. Electrochemical Soc., Vol. 144, No. 9, September 9, 1997, pp. 3222-3226 (hereinafter "Kakuno") and U.S. Patent No. 4,695,351 to Mallary (hereinafter "Mallary").

Further, the Examiner alleges that the 37 C.F.R. §1.132 Declaration of Hong Xu filed June 10, 2004 (hereinafter "the Declaration") is defective because the copy of the Declaration received by the Examiner has neither tabs nor separating pages identifying Exhibits 2 and 3, and the graphs regarding ESCA profiles on page 13 of the Declaration are solid black lines. In addition, the Examiner avers that the Declaration is

based on data of two alloys (an alloy containing 64% Fe and an alloy containing 76% Fe), thus is not commensurate in scope to the claims.

In response, applicants have resubmitted a true copy of the original 37 C.F.R. §1.132 Declaration of Hong Xu dated June 10, 2004 concurrently with the filing of the present response. The Declaration is accompanied by four exhibits (Exhibits 1-4), each of which is separated by a marked tab and a marked separating page. Further, the graphs on page 13 of the Declaration (ESCA profiles) are multi-colored. In view of the above resubmission, the defects in the § 132 Declaration are herewith addressed as follows.

Applicants respectfully submit that the inventive alloy is considerably different from Kakuno's alloy in view of the impurity levels in Kakuno's alloy and the inventive alloy. As indicated by paragraph (11) of the Declaration (page 11), the oxygen and nitrogen content in Kakuno's alloy are 5.7 atomic% and 0.19 atomic% respectively, while the inventive alloy has well below 1 atom% of oxygen content and is free of the nitrogen content. Since the oxygen and nitrogen content is impurity, i.e., unwanted material that deteriorates the desired product, one skilled in the art would consider the combined 5.89% in Kakuno's alloy as significant. Further, the impurity level in the Kakuno's alloy is near or more than six-fold greater than that in the inventive alloy. In light of the intended use of the inventive alloy films, i.e., use for magnetic recording devices as magnetic films, one skilled in the art would consider a near six-fold or more difference in impurity levels as significant because impurities such as oxygen or nitrogen can substantially reduce the magnetic moment of the alloy (the last paragraph on page 12 of the Declaration). In addition, as a material to be used in magnetic recording head, the

inventive alloy is considerably different from Kakuno's alloy because the alloy film prepared according to Kakuno's process is not suitable for the above-mentioned use. It is common knowledge in the art that annealing is a necessary step in the process of fabricating thin film magnetic recording heads. However, Kakuno's film broke completely into small pieces after low temperature annealing (the last paragraph on page 9 of the Declaration). In contrast, the inventive film containing equal amount of Fe are still intact after the same annealing treatment (the last paragraph on page 9 of the Declaration).

Further, two embodiments of the present invention, i.e., CoFe alloy films containing 64% Fe and 76% Fe, are presented in the Declaration, and the comparative data sufficiently show the superiority of the claimed alloy film over Kakuno's alloy film. Since Claims 1, 29 and 30 have been amended to further limit the iron constituent of the alloy film to between about 60% and about 75%, applicants therefore respectfully submit that the Declaration is commensurate in scope to the claims as amended.

Turning to the rejection of Claims 1-10 and 28-30 under 35 U.S.C. §103, applicants respectfully submit that the present invention is not obvious over the combination of Kakuno and Mallery, especially in view of the Declaration and the amendments herewith.

The Examiner argues that Kakuno's alloy would be expected to possess all the same properties as recited in the instant claims because Kakuno's alloys allegedly have compositions that are encompassed by the claims and allegedly are produced by substantially identical processes.

“Ascertain the differences between the prior art and the claims at issue requires interpreting the claim language, and considering both the invention and the prior art references as a whole.” (emphasis added by applicants) See MPEP 2141.02. “In determining whether the invention as a whole would have been obvious under 35 U.S.C. § 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look not only to the subject matter which is literally recited in the claim in question... but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification... Just as we look to a chemical and its properties when we examine the obviousness of a composition of matter claim, it is this invention as a whole, and not some part of it, which must be obvious under 35 U.S.C. § 103.” In re Antonie, 559 F.2d 618, 620, 195 USPQ 6,8 (CCPA 1977) (emphasis added by applicants) (citations omitted).

Applicants respectfully submit that Kakuno’s alloys are produced by a substantially different process, and consequently Kakuno’s alloy films do not possess the inherent characteristics of the claimed alloy films. Hence, the claimed alloy films are different from Kakuno’s alloy films as a whole.

Since electroplating is such a widely-used plating method and encompasses a broad range of techniques, one skilled in the art would not readily consider two plating processes as substantially identical just because they are both electroplating processes. Contrarily, it is well-known in the field that different electroplating conditions cause different morphology and crystallinity of the resulting films and therefore even the properties of electroplated films with the same composition can vary significantly depending on the electroplating conditions, such as bath chemistry,

mixing method, current density, pH and temperature. The present application and Kakuno use different plating processes. Specifically, the difference are: (1) the present process uses a paddle cell with continuous filtration, while Kakuno uses a stationary system; (2) the plating bath of the present process uses specific additives, such as mono or polycarboxylic acid(s), boric acid, aromatic sulfinic acid or a salt thereof, optionally a halide salt, and optionally a surfactant, while the plating bath of Kakuno does not use any additives; and (3) the plating bath of the present process uses buffer and has a pH of about 2.5 to about 3.5, while the plating bath of Kakuno does not adjust pH.

Consequently, the properties of the inventive alloy films are markedly different from that of Kakuno's alloy films. As shown by the data in the Declaration, the inventive alloy films distinguish over Kakuno's alloy films in magnetic moment, resistivity, B-H loops, crystallinity and impurity concentration. Further, the inventive alloy film is distinct from the Kakuno's alloy film because a magnetic moment of 2.3 Tesla is substantially different from a magnetic moment of 2.2 Tesla in the context of high-density magnetic recording. CoFe alloys have a wide application in magnetic recording industry, where every improvement in saturation magnetization is considered important. More magnetization can greatly improve the performance of magnetic recording devices because even a moderate magnetization improvement allows a higher field in the write pole of the recording head to be generated and therefore a higher coercivity recording media to be used. Consequently this media allows a higher density of bits to be recorded. It is well known in the field that materials with moderate difference, such as 0.1 Tesla, in magnetic moment can result in substantial differences in performance in high-density magnetic recording devices. Therefore, the present

invention is distinctive and superior over Kakuno's alloy film. In addition, Mallery does not obviate the defects of Kakuno because it does not teach or remotely suggest modifying Kakuno's process to improve the morphology and crystallinity of the resulting alloy film.

In view of the above, not only the cited references fail to remotely suggest modifying Kakuno's process, but Kakuno's alloy films are inherently not able to possess the characteristics of the claimed alloy films even if, *arguendo*, Kakuno's process is modified as suggested by the Examiner.

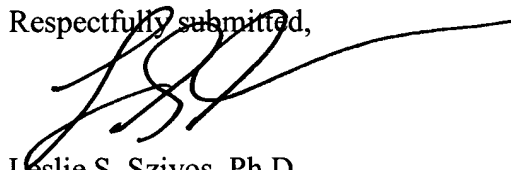
Therefore, the claims of the present application are not obvious over the combination of Kakuno and Mallery, since the prior art references do not teach or remotely suggest applicants' claimed *cobalt-iron binary alloy electroplated film which has a saturation magnetization of 2.30 Tesla or greater, anisotropic and consisting of a binary alloy (100%-x) Co(x)Fe, where x is between about 60% and about 75% by weight.*

In view of the above remarks and the experiments evidenced in the resubmitted 37 C.F.R. §1.132 Declaration dated June 10, 2004, applicants submit that the claims of the present invention are patentably distinguished from the combined disclosures of Kakuno and Mallery. Applicants thus respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. §103 that is based upon the disclosures of Kakuno and Mallery.

Regarding the rejection to Claim 31 under the first paragraph of 35 U.S.C. §112, applicants have deleted Claim 31 from the present application, without prejudice. The rejection to Claim 31 has been obviated, reconsideration and withdrawn thereof are respectfully requested.

Thus, in view of the foregoing amendments and remarks, it is firmly believed that the present case is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'LSZ', with a long horizontal flourish extending to the right.

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